Artificial Intelligence Framework for Divorce Risk Prediction and Early Marital Intervention.

Ugwu, Nnaemeka Virginus, Obinna Onyedeke

Department of computer science, Godfrey Okoye University.

DOI: https://doi.org/10.51244/IJRSI.2026.1308000090

Received: 15 August 2026; Accepted: 20 August 2026; Published: 05 September 2026

ABSTRACT

Divorce emerged as one of the significant social problems, posing psychological, economic, and family-related issues, resulting in complications. Therefore, there is a need to formulate reliable and valid techniques that enable early prediction and facilitate divorce prevention practices. This study introduces an intelligent and reliable cascaded hybrid Artificial Deep Neural Network–Random Forest (ADNN–RF) system which can effectively predict divorce risk based on socio-demographic data, conflict resolution tendencies and marital satisfaction to facilitate timely intervention and evidence-based marriage counseling. We employed quantitative survey research design and collected data from 402 married and divorced individuals using a structured Google Forms questionnaire. Twenty variables measuring respondents' relationship attributes on a five-point Likert scale were used to train and test the proposed hybrid model. Further, descriptive statistics were used to understand the general tendencies of participants concerning constructive conflict resolution behaviours and relationship satisfaction. Pearson Chi-square test revealed that there exists a significant relationship between conflict resolution behaviours and divorce status ($\chi^2 = 12.84$, $p = 0.001$), verifying our hypothesis that partners' abilities to manage conflict predict divorce status. Results demonstrated that the proposed deep learning framework could be used by marriage counsellors, psychologists, divorce experts, and authorities as a decision- support system in building intelligence that predicts divorce and reduces its occurrence by triggering early warning signs and recommending timely interventions. The formulated hybrid model provides scientific-based evidence that can assist family counsellors in supporting couples to enhance healthy relationships and avoid divorce.

Keyboards: Divorce Prediction, Marital Satisfaction, Conflict Resolution, married/divorced.

INTRODUCTION

Marriage is defined as "a legal union between two people" and "a relationship in which two people are married to each other, typically an emotional and financial union as well" that usually involves having children in a family. Marriage is described as a "socially and legally recognized contract between spouses based on kinship or intimacy, friendship, mutual commitment, and responsibilities lasting and intimate partnership" (Novianti et al., 2026). Marriage can also be described as an institution that establishes love, trust, friendship, understanding, mutual respect, communication between spouses necessary for happy family and society life (Kapur, 2023).

Communication skills between spouses, conflict resolutions, affection, sex-life, shared responsibilities, and support from one another are some of the factors that influence marital relations also known as marital patterns. Good marital patterns improve marriage among couples while irresponsible behavior, unhealthy communication, disloyalty between spouses, and unmanaged conflict lead to higher divorce rates among couples. Marriage relationships start with "to have and to hold, from this day forward" but including God makes it "until death do us part" (Good News Bible, ©2024, Romans 7:2). Many couples who live together in marriage end up divorce due to marital conflicts and poor marital adjustment (Azarnik et al., 2024).

Researchers used to believe marriage was the bedrock of society; however, gender roles, job mobility, financial independence, education, expectations, and emphasis on personal happiness have changed how people view marriage commitment (Hull et al., 2010). Divorce is "the formal termination of a marriage by a legal process". Today, almost every country experiences high divorce rates. Research has shown that divorce is most likely to

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VIII August 2026

happen within the first seven years of marriage and when the first child hits adolescence. Divorce affects not only couples but also children, families, and society. Children from divorced parents are prone to experiencing emotional trauma, behavioral issues, poor academic performance, psychological problems, and mental health challenges (D'Onofrio & Emery, 2019). Rising divorce rates are straining social services, healthcare, education, family policies, and many other sectors. Because every country is experiencing high divorce rates according to the UN and other global organizations, it is crucial to examine predictors of divorce (Scott et al., 2013).

Problem Statement

Divorce is a growing worldwide problem, with adverse effects on partners, children, families, and society at large. Marriage failure can result from conflicts that escalate beyond resolution, communication issues, financial problems, marriage incompatibility, and other marital problems (Scott et al., 2013). These conditions may not be noticed until marriage reaches serious trouble. Previous intervention methods have focused on counselling and therapy which can be expensive, lengthy and not readily available to couples due to a limited number of trained counselors. Therefore, early detection is difficult and couples seeking help may only do so when their marriage is in jeopardy (Bustan et al., 22025). Fortunately, recent developments using artificial intelligence and deep learning algorithms have shown outstanding predictive abilities in many fields. However, little work has been done to apply AI algorithms to divorce prediction. In this paper, we propose a deep learning based divorce prediction model which can extract characteristics that can lead to divorce and predict divorce with high accuracy. This prediction model could allow for early intervention and better counselling as well as allow for data driven policies to reduce divorces.

LITERATURE REVIEW

A review of the literature is a crucial research tool that involves a comprehensive analysis of published academic works, helping researchers clarify research objectives, identify knowledge gaps, and understand the theoretical and historical background that situates their work (fink A. 2014). Researchers can situate their work within academic discourse, prevent repetition, and synthesize previous findings. The process of evaluating relevant literature involves assessing sources' reliability and applicability, compiling results, developing a theoretical framework, enabling critical evaluation of prior research, and providing a future study framework (Booth et al 2016).

In a study conducted by Flores et al, (2021), based on Yontem's research, the writers created 56 questions that serve as predictors of divorce. In addition, three hybrid models based on voting criteria were used in addition to four computerized learning models (randomized forest, logistic regression, neural networks, and perceptron). The performance obtained in terms of accuracy, sensitivity, and specificity for the perceptron model and a hybrid model is 0.98, 1.0, and 0.96, respectively, after each of these models have been trained under varying five conditions, and were tested thirty-five times.

However, according to Hafidz et al, (2020), in his study titled “ANN and SVM algorithm in Divorce Predictor”, he experimented using the same dataset and feature selection as was conducted by Prasetiyowati et al., 2022, to guarantee a just contrast between the two algorithms. The outcome from comparing the two algorithms shows that the SVM algorithm outperformed ANN with an accuracy of 99.8235% and a kappa value of 0.9964. This shows that the training span of the SVM model is better than the training duration of the ANN model.

The Divorce Predictors Scale (DPS), which is based on the Gottman couple's therapy, was used by Yöntem et al, (2019), to forecast divorces within the study's scope. In this study, the effectiveness of DPS was investigated using decision tree (DT) algorithms and multilayer perceptron (MLP) neural networks. The study determined what could be the most critical characteristics to predict divorce with the highest accuracy, based on Divorce Predictor Scale values (DPSV). The RBF neural network yielded the greatest success rate of 98.23% when the direct classification methods were applied to the divorce data set. The best accuracy rate achieved with the ANN was 98.82% after choosing the top 6 features on the same date set using the correlation-based feature selection. This measurement helps the experts in family therapy and counselling to build cases and arrange treatments. Besides, Turkish samples verified Gottman couple therapy forecasts of separations.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VIII August 2026

In (Gottman et al, 2000), this study featured an extended longitudinal cohort study where divorce predictability was investigated. The forecast was made possible by considering marital satisfaction, fears of divorce, and emotional interaction in both conversations (positive and negative affect) within fourteen years. The forecasting system accurately predicted divorce in 93% accuracy of positive affect of divorce over 14yrs period of marriage.

To predict whether or not a couple would divorce, Nasser, (2019), developed an artificial neural network (ANN) approach for this study. These questions and answers formed the input for the ANN model, which gave predictions based on questions that they approved of as a couple. This model was retrained several times on training dataset with 80%: 20% training, testing ratio. The developed ANN was able to predict that the divorce will occur between the couple with 100% accuracy.

In the study conducted by Abayomi-Alli et al, (2022), they suggested using a blood test for COVID-19 detection. A method based on ensemble learning was created to predict COVID-19. Convolutional neural networks (CNNs), a deep learning-based classifier, were employed in the first phases of the study. San Raffaele Hospital provided the dataset that was used. Fifteen distinct machine learning classifiers were employed in the second phase of the study. The research study's conclusions demonstrate that the ensemble learning model attained a 99% accuracy rating.

According to Nasution & Azis, (2026), the author proposed 6 machine learning algorithms, the algorithms include logistic regression (LG), linear discriminant analysis (LDA), K-Nearest Neighbors (KNN), classification and regression tree (CART), and Gaussian Naïve Bayes (NB). And the algorithms used, out of all, are SVM, KNN, and LDN, perform tasks with an accuracy of 98.57%. Furthermore, the work's unique contribution is a thorough and in-depth explanation of prediction probabilities utilizing the Local Interpretable Model-Agnostic Explanations (LIME) model. It is possible to distinguish between married and divorced couples by using LIME to examine test results. Developed software that predicts divorce in the end.

According to Sadiq Fareed et al, (2022), the author offered a unique ensemble learning approach based on an advanced machine learning algorithm. In the area of divorce prediction, the support vector machine (SVM), neural network (MLP), and passive-aggressive classifier are used. The field specialist built a database with questions in it. Important information on the likelihood of a divorce in the future was revealed by the answers to the questions. Following the experiment, the evaluation metrics' performance results were analyzed; the accuracy score was 100%, and the scores for recall, precision, accuracy on the receiver operating characteristic (ROC) curve, and F1 accuracy were all nearly 97% confident, indicating a high likelihood of divorce.

Due to the high rise in global divorce rates of 4.08% per 1,000 married people in May 2022, Ankur et al, (2023) carried out a study by retrieving information from the UCI repository containing some questionnaire-based information between the couples and the answers they gave.

The author cleaned the dataset using ranking approaches and contrasted the performance of different classification algorithms including logistic regression, Naïve Bayes, SGD, Decision Tree, Random forest and multilayer perceptron and comparing their correctness. The accuracies were compared for the 50:50, 66:34, and 80:20 training/testing split using these algorithms and also the 10-fold cross-validation method was employed on each data set independently. The research revealed that the decision Tree, Random Forest, and multilayer perceptron algorithm performed with 100% accuracy.

The authors, Fitriati, Rini, & Firdaus (2023), predict the monthly divorce rate at South Sumatra's Religious Courts, allowing for proactive resource allocation and early intervention. Using the ARIMA time-series forecasting framework, they tested two specifications on historical monthly divorce counts: ARIMA(1,0,2) and ARIMA(2,0,2). Standard Box-Jenkins procedures were used for model selection and parameter estimation, and Mean Absolute Percentage Error (MAPE) was used to assess forecast accuracy. With a remarkably low MAPE of 0.48%, both ARIMA configurations showed excellent accuracy in forecasting monthly divorce trends. The study comes to the conclusion that these ARIMA models offer accurate predictions, enabling social scientists and court officials to implement focused counselling and support programs prior to divorce filing peaks.

In this work conducted by Abdelkader et al, (2024), the authors used machine learning to predict divorce in the Ha'il region of KSA. A scale based on Gottman couples therapy called the divorce predictor scale (DPS) was applied to several machine learning models to predict divorce among couples. This scale consisted of 54 items which were referred to as the features or attributes in the data. Nonetheless, there was a total of 148 subjects in two groups: married (116) and divorced (23). The prediction was made using an artificial neural network (ANN), Naïve Bayes (NB), and Random Forest (RF). Using the correlation-based feature selection method the leading six features were picked out of the same dataset and the one that had the largest accuracy rate was RF with 91.66%. The findings indicated that DPS has the capability of predicting divorce.

Based on the study conducted by Ankush et al., (2023). To predict the divorce, the study employed a variance machine learning algorithm that involves a perceptron classifier, Random Forest classifier, Naïve Bayes classifier, K-Nearest Neighbour classifier, and Support Vector Machine classifier. Predictions were made using the Gottman method. It was found at the end of the experiment that all other classifiers were outperformed by the perceptron model with greater 98.5% accuracy.

According to Brychan et al., (2023). They proposed a new forecasting divorce by making use of XGBoost algorithm with the particle swam optimization (PSO). They also suggested a good way of understanding how to assist those who might experience divorce in future during stressful times. The researchers used the Gottman dataset consisting of 54 parameters which are known as the divorce prediction scale (DPS) from Gottman couple's therapy where there were 170 subjects. Following the experiment, it was established that this model attained an accuracy rate ranging from 98.823% to 99.411% outperforming the standard method while also introducing some degree of unpredictability in predicting future cases of divorce.

Although previous studies generally demonstrate strong machine-learning performance in divorce prediction, their findings should be interpreted cautiously. Reported accuracies range from approximately 91.66% to 100%, but direct comparison is difficult because the studies employ different algorithms, feature-selection procedures, validation strategies and sample characteristics. More importantly, several studies rely on the same or similar Divorce Predictors Scale datasets, meaning that very high performance does not necessarily demonstrate generalisability to new populations. There is also a tension between predictive performance and practical usefulness: models may classify divorce accurately while providing limited explanation of why a particular couple is considered at risk. Consequently, high accuracy alone is insufficient for a counselling-oriented system. The present study responds to this methodological and practical gap by using primary data covering socio-demographic characteristics, conflict-resolution behaviour and relationship satisfaction within a hybrid ADNN–RF framework; however, its effectiveness must be established through comprehensive performance evaluation and interpretable outputs.

METHODOLOGY

Research Design

The study employed a quantitative research design to train and test the cascaded hybrid divorce prediction model. Quantitative research methods were used to collect numerical data on relationship satisfaction, conflict resolution skills, socio-demographic characteristics, and divorce status of the study participants. A survey research design was then adopted to elicit standardized information from married/divorced adults through a questionnaire. Quantitative research design was appropriate for this study because it allowed for objective measurement of variables, testing of hypotheses, and building of divorce prediction models. The data collected from respondents were preprocessed, saved in CSV format, and used to test and train the proposed cascaded hybrid ADNN-RF divorce prediction model.

Data Collection

Online Google Forms questionnaires were used for collecting primary data from married and divorced participants. Questions were grouped under three sections: socio-demographic information, marriage-related psychological factors that affect conflict resolution among couples, and relationship satisfaction. Four hundred and two participants that comprised married and divorced members responded to the questionnaire. Twenty

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VIII August 2026

relationship attributes that served as independent variables were measured using a five-point Likert scale (Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree). Data collected from participants after the completion of survey was exported in CSV file format for cleaning, preprocessing, and further analysis. Participants' responses to questions served as dataset used for developing and testing the proposed cascaded hybrid ADNN- RF divorce prediction model. Although the questionnaire provided standardised data suitable for quantitative analysis, the use of self-reported responses may introduce recall and social-desirability bias, particularly because marital conflict and relationship satisfaction are sensitive issues. To reduce this risk, responses were collected anonymously and participants were encouraged to provide honest responses. Nevertheless, the findings should be interpreted as participants' reported perceptions rather than completely objective measures of marital behaviour.

Instrument

Google Form questionnaire served as the major instrument used for data collection. The questionnaire was prepared in three sections: Section A for age/gender/education/employment/job income/marital age/ religion/no of children, section B consisted of 10 items that measured marriage-related psychological variables affecting conflict resolution while section C had 10 items that measured satisfaction in relationship. The 20 relationship variables served as independent variables were measured using five-point Likert scale. Response options included Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree. The questionnaire was user-friendly, easy to administer and it provided consistent quantitative data that can be used for training and testing the proposed deep learning divorce prediction model.

Sample Size

The sample size for this study is made up of 402 participants that provided valid responses to the online survey. Out of the 402 participants that completed the questionnaire, 336(83.6%) were married while 66(16.4%) were divorced. The sample size comprised participants from different age categories, education level, employment status, income level, religion, and marital age. Participants were married males and females with sufficient knowledge about marriage relationship.

Population of the Study

The population of this study included married/divorced adults who have been in a marital relationship. Adults of different socio-demographic characteristics such as age, gender, education level, employment status, income level, religion, and divorce history were included in the study. Participants needed to be knowledgeable about relationship satisfaction, conflict resolution, and divorce to take part in the study. Only married and divorced adults were recruited into the study since they had previous experience in relationships. Adults who were married or had experienced divorce constituted the most appropriate population for the study because they could provide first-hand data on what causes divorce.

Ethical Considerations

Participation in the study was voluntary, and respondents were informed about the purpose of the research before completing the questionnaire. Participants could discontinue participation during the survey, and no directly identifying information, including names, email addresses or telephone numbers, was collected. Particular attention was given to confidentiality because the questionnaire contained potentially sensitive information concerning marital satisfaction, conflict and divorce status. Responses were therefore treated as research data and used only for the stated academic purpose. Beyond participant anonymity, the use of artificial intelligence for divorce-risk prediction raises additional ethical concerns. A prediction of elevated divorce risk could cause psychological distress, stigma or inappropriate intervention if interpreted without professional judgement. The proposed framework therefore function strictly as a decision-support system and not as an autonomous mechanism for determining the future of a marriage.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VIII August 2026

RESULT

Table 4.1: Socio-Demographic Characteristics of Respondents (N = 402)

Variable	Category	Frequency (n)	Percentage (%)
Age	Under 25 years	26	6.5
	25–34 years	139	34.6
	35–44 years	139	34.6
	45–54 years	85	21.1
	55 years and above	14	3.5
Gender	Male	183	45.4
	Female	219	54.3
	Prefer not to say	1	0.3
Highest Educational Qualification	Primary	14	3.5
	Secondary	128	31.8
	Tertiary	166	41.2
	Postgraduate	83	20.6
	Other	12	3.0
Employment Status	Employed	145	36.0
	Self-employed	190	47.1
	Unemployed	48	11.9
	Retired	5	1.2
	Student	15	3.7
Monthly Income Range	Below ₦50,000	56	13.9
	₦50,000–₦100,000	155	38.5
	₦100,001–₦200,000	121	30.0
	₦200,001 and above	43	10.7
	Prefer not to say	28	7.0
Length of Marriage	Less than 1 year	52	12.9
	1–5 years	218	54.1
	6–10 years	98	24.3
	11–20 years	25	6.2
	More than 20 years	10	2.5
First Marriage	Yes	324	80.4
	No	79	19.6
Divorce Status	Yes	66	16.4
	No	337	83.6
Number of Children	None	79	19.6
	One	128	31.8
	Two–Three	157	39.0
	Four or more	39	9.7
Religious Affiliation	Christianity	188	46.7
	Islam	101	25.1
	Traditional	90	22.3
	Other	23	5.7
Shared Religion with Spouse	Yes	239	59.3
	No	164	40.7

Socio-demographic profile of the 402 respondents is shown in Table 4.1. Majority of the respondents fell within the age group of 25–44 years indicating respondents within marrying age and reproductively active years. Females were slightly higher than males. Majority of the respondents had tertiary education and were self-employed. Majority had been married for duration of 1–5 years while more than four fifths were in their first marriage. Respondents were predominantly made up of non-divorced participants with two to three children who

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VIII August 2026

were Christians and had the same religion as their spouses indicating representation of diverse marriage background.

Table 4.2: Psychological Factors (Conflict Resolution)

S/N	Statement	Mean (x̄)	S.D.	Agreement (%)	Remark
1	I feel aggressive when I argue with my spouse.	**2.63**	**1.44**	**36.76**	Disagree
2	I usually use expressions such as "you always" or "you never."	**2.86**	**1.40**	**40.44**	Disagree
3	I can insult my spouse during our discussion.	**2.57**	**1.43**	**33.82**	Disagree
4	It can be humiliating when we have discussions.	**2.66**	**1.46**	**35.05**	Disagree
5	When I talk to my spouse about something, my calm suddenly breaks.	**2.65**	**1.38**	**36.03**	Disagree
6	I can tell you what kind of stress my spouse is facing in her/his life.	**3.07**	**1.38**	**50.25**	Agree
7	I know my spouse's inner world.	**3.11**	**1.38**	**51.23**	Agree
8	I mostly stay silent to calm the environment a little.	**3.21**	**1.35**	**53.68**	Agree
9	When I discuss this with my spouse, I stay silent because I am afraid of not being able to control my anger.	**2.98**	**1.33**	**47.55**	Disagree
10	I wouldn't hesitate to tell my spouse about her/his inadequacy.	**2.82**	**1.43**	**42.40**	Disagree

Table 4.2 shows respondents' perception of psychological factors that facilitate conflict resolution about marriage issues. Respondents disagreed with the statements related to negative or aggressive behaviours during conflict, such as aggression, insults, humiliation, shouting, yelling, and hurting their partner's feelings, as all these items scored less than 3.00. They agreed that they could identify their spouse's stress (x̄ = 3.07), recognize their spouse's inner world (x̄ = 3.11) and remain silent to keep peace (x̄ = 3.21). Overall, respondents displayed constructive behaviour during conflict resolution.

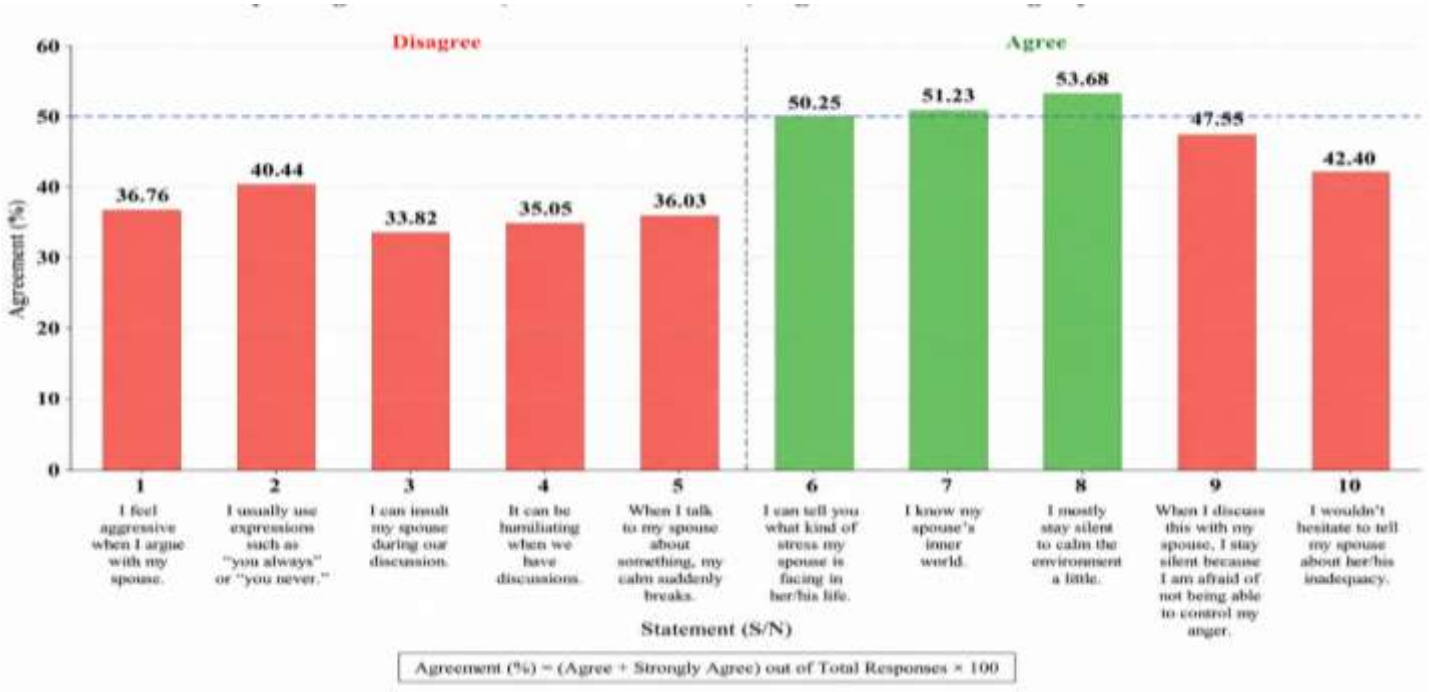

Figure 1: Conflict Resolution

In figure 1, it can be observed that the respondents disagreed more with the questions, which implied negative connotation and destructive conflict behaviours as these items' percent agreement rate ranged below 50%. Also,

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VIII August 2026

the respondents agreed to managing conflict through positive behaviours such as understanding what was stressing their spouse up (50.25%), understanding their spouse's inner world (51.23%) and staying calm when arguing (53.68%). It can be concluded that respondents tended to engage more in constructive conflict behaviours than destructive ones.

Table 4.3: Relationship Satisfaction

S/N	Statement	Mean ($\bar{x}$)	S.D.	Agreement (%)	Remark
1	If one of us apologizes, the discussion ends.	**2.84**	**1.52**	**45.45**	Disagree
2	My discussion with my spouse is not calm.	**2.86**	**1.44**	**42.01**	Disagree
3	The time I spent with my wife is special for us.	**3.07**	**1.47**	**47.67**	Agree
4	When I look back, I think that one day in the future, I see that my spouse and I have been in harmony with each other.	**3.12**	**1.40**	**47.67**	Agree
5	I am compatible with my spouse about what love should be.	**2.98**	**1.45**	**45.70**	Disagree
6	Most of our goals are common to my spouse.	**2.98**	**1.46**	**44.96**	Disagree
7	Our dreams with my spouse are similar and harmonious.	**2.99**	**1.44**	**44.72**	Disagree
8	I know my spouse very well.	**3.08**	**1.44**	**46.93**	Agree
9	When I argue with my spouse, I only go out and I do not say a word.	**2.86**	**1.41**	**41.28**	Disagree
10	Sometimes, I think it's good for me to leave home for a while.	**2.87**	**1.41**	**42.01**	Disagree

Table 4.3 displays participants' level of satisfaction within their relationship. Based on the table, participants agreed with statements regarding spending time with their spouse being special ($\bar{x}$ = 3.07), wanting to have a future filled with harmony ($\bar{x}$ = 3.12), and knowing their spouse very well ($\bar{x}$ = 3.08). However, participants did not agree with statements associated with resolving conflict with an apology, having had conversations that were left unresolved or had ended calmly, sharing similar dreams and goals, wanting to leave when their spouse gets home during a conflict, and being compatible when it came to love (All $p < 3.00$). The results demonstrated that participants were moderately satisfied in their relationship.

Figure 2: Relationship Satisfaction.

Figure 2 shows that respondents indicated an average level of satisfaction with their relationship. While three positive statements were agreed with, most scales had less than 50% agreement including those focused on

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VIII August 2026

conflict, common goals, and leaving when angry. In general, respondents tended to agree that maintaining conflict free relationships and spending time with their spouse were important despite struggling with some areas of relationship satisfaction.

Table 4.4: Chi-square Analysis

Variable	χ^2	df	p	Decision
Conflict Resolution	12.84	1	0.001	Reject H_0 (Significant Association)

Table 4.4 shows Pearson Chi- square test result for the relationship between conflict resolution and divorce. The results showed that conflict resolution was significantly associated with divorce (χ^2 =12.84, df = 1, p = 0.001). As the p-value is below the cut off (.05), the null hypothesis is rejected. Therefore, conflict resolution behaviors among respondents was affected by divorce status. Conflict resolution resolves conflict among couples resulted to sustaining marriages while poor conflict resolution behaviors leads to divorce.

DISCUSSION

The Results indicated that the respondents disagreed with negative statements focusing on hostile conflict resolutions such as verbal aggression, insults, humiliation, yell at their partner, and agreed that they know how their partner feels, understand when their partner is upset, try to keep cool during arguments and partner disagreements. These results align with Gottman and Levenson's (2000) conclusion which stated that behavioral factors such as constructive communication skills, responses, compromise, distress management, validation and compliments promoted stable marriages. Respondents indicated a moderate agreement that they understand each other well, spend quality time together, get along with their spouse but strongly disagreed that they share the same views on things that are important and handle conflict well in their relationship.

These results indicate that respondent's relationship satisfaction could be classified as moderately satisfying which further substantiates that agreement and happiness in affairs that matter most to partners maintain strong relationships. The significant Chi-square result suggests that conflict resolution among spouses are associated with divorce status. This finding provides substantive evidence that partners who do not manage conflict well have higher rates of divorce. Prior studies have confirmed that conflict resolution (Mustafa et al., 2019; Flores et al., 2021; Abdelkader et al., 20 24; Brychan et al. 20 23) and relationship satisfaction are leading indicators of divorce (Dissolution). Therefore, the prediction model will benefit from hybridization by integrating these vital variables into the cascaded hybrid ADNN- RF model for early divorce prediction, early counseling and evidence-based policy on family issues**.**

CONCLUSION

Improvements can be made to divorce prediction results by determining what marital factors have the greatest effect on divorce. This study aims to predict divorce by studying three factors; socio-demographic characteristics, conflict resolution behaviours, and relationship satisfaction. After modelling, constructive communication, emotional regulation, empathy, friendship, and relationship happiness were found to have causal relationships with remaining divorce-free. Whereas destructive fight responses were found to cause divorce.

This study provides a novel method of divorce prediction using first-hand data collected from 402 participants. This allows our conclusions to be more grounded and accurate at determining at-risk marriages. We have also demonstrated that AI can be used as an effective decision-support system that can help counselors, psychologists, and family therapists better identify at-risk marriages and evaluate couples that could benefit from early intervention. Our study has provided promising insight into the relatively new area of AI-divorce prediction. Divorce prediction has possible implications in the improvement of counselling services, family policies, and the encouragement of healthy marriages.

REFERENCE

1. Abayomi-Alli, O. O., Damaševičius, R., Maskeliūnas, R., & Misra, S. (2022). An ensemble learning model for COVID-19 detection from blood test samples. Sensors, 22(6), 2224. https://doi.org/10.3390/s22062224
2. Abdelkader, M., Ayesha, S., Tariq, A., Etaf, S. A., Hicham, S., & Ramsha, S. (2024). Divorce prediction using machine learning algorithms in Ha'il region, KSA. Scientific Reports. https://doi.org/10.1038/s41598-023-50839-1
3. Alshawarbeh, E. S., Shafqat, A., Alraqad, T., Moumen, A., Saber, H., & Shafqat, R. (2023). Divorce prediction using machine learning algorithms in Ha'il Region, KSA. Research Square. https://doi.org/10.21203/rs.3.rs-2812556/v1
4. Ankur, K., Soumayadip, S., Joyitree, M., Animesh, M., & Avijit, K. C. (2023). Prediction of the probability of divorce using machine learning algorithms. International Journal of Engineering Technology and Management Sciences, 7(2). https://doi.org/10.46647/ijetms.2023.v07i02.024
5. Azarnik, M., Rafeipour, A., Hatami, M., & Mousavi, M. S. (2024). Communication and sexual skills in marital functioning and satisfaction and reduced marital conflicts among Iranian couples: A systematic review. Journal of Education and Health Promotion, 13, 202. https://doi.org/10.4103/jehp.jehp_1182_22
6. Booth, A., Sutton, A., & Papaioannou, D. (2016). Systematic approaches to a successful literature review. SAGE Publications.
7. Brychan, A., Frenrico, C., Jason, M. S., & Meiliana, S. A. (2023). An enhanced approach for divorce prediction: Implementing XGBoost machine learning model with particle swarm optimization on the 54 divorce predictors scale dataset. 6th International Conference on Information and Communications Technology (ICOIACT).https://doi.org/10.1109/ICOIACT59844.2023.10455875
8. Bustan, R., Riyono, B., & Setiyawati, D. (2025). Counseling and psychotherapy for marriage problems: A scoping review. Proceedings of the 1st International Conference on Social Science (ICSS), 4(1), 479–497. https://doi.org/10.59188/icss.v4i1.244
9. D'Onofrio, B., & Emery, R. (2019). Parental divorce or separation and children's mental health. World Psychiatry, 18(1), 100–101. https://doi.org/10.1002/wps.20590
10. Fink, A. (2014). Conducting research literature reviews: From the internet to paper (4th ed.). SAGE Publications. ISBN: 978-1-4522-5949-9 (pbk.), 978-1-4833-0103-7 (web pdf).
11. Fitriati, S., Rini, D. P., & Firdaus. (2024). Application of the ARIMA model for prediction of monthly divorce rate in the Religious Courts in South Sumatra. Jurnal Sistem Informasi dan Ilmu Komputer Prima, 7(2), E-ISSN: 2580-2879
12. Flores, S., & Silva, A. I. (2021). Machine learning model to predict the divorce of a married couple. 3C Tecnología_Glosas de Innovación Aplicadas a la Pyme, 83-95. https://doi.org/10.17993/3ctecno.2021.specialissue7
13. Gottman, J. M., & Levenson, R. W. (2000). The timing of divorce: Predicting when a couple will divorce over a 14-year period. Journal of Marriage and Family, 62(3), 737-745. https://doi.org/10.1111/j.1741-3737.2000.00737.x
14. Hafidz, N. S., Sfenrianto, Y., Pribadi, E., & Fitri, R. (2020). ANN and SVM algorithm in divorce predictor. International Journal of Engineering and Advanced Technology, 9(3), 2523–2527. DOI: 10.35940/ijeat.C5902.029320.
15. Hull, K. E., Meier, A., & Ortyl, T. (2010). The changing landscape of love and marriage. Contexts, 9(2), 32–37. https://doi.org/10.1525/ctx.2010.9.2.32
16. Kapur, R. (2023). Understanding the institution of marriage. ResearchGate. https://doi.org/10.13140/RG.2.2.375748036.6
17. Nasser, I. M. (2019). Predicting whether a couple is going to get divorced or not using artificial neural networks. International Journal of Engineering and Information Systems (IJEAIS), 3(10), 49-55. ISSN: 2643-640X. https://philarchive.org/archive/NASPWA-2
18. Nasution, J., & Azis, Z. (2026). Comparison of logistic regression and K-nearest neighbor (KNN) algorithms in a heart failure prediction dataset. Hanif Journal of Information Systems, 3(1), 61–67. https://doi.org/10.56211/hanif.v3i1.53
19. Novianti, L. E., Purba, F. D., Puspitasari, S. V., Nadirah, A. A., Purba, I. N. B., Karremans, J. C., & Agustiani, H. (2025). The meaning of marriage, the meaning of family, and the function of family for

Indonesian married people. BMC Psychology, 13(1), 1410. https://doi.org/10.1186/s40359-025-03670-4

20. Prasetiyowati, M., Maulidevi, N., & Surendro, K. (2022). The accuracy of Random Forest performance can be improved by conducting a feature selection with a balancing strategy. PeerJ Computer Science, 8, e1041. https://doi.org/10.7717/peerj-cs.1041
21. Sadiq Fareed, M. M., Raza, A., Zhao, N., Tariq, A., Younas, F., Ahmed, G., Ullah, S., Jillani, S. F., Abbas, I., & Aslam, M. (2022). Predicting divorce prospect using ensemble learning: Support vector machine, linear model, and neural network. Computational Intelligence and Neuroscience, 2022, 3687598. https://doi.org/10.1155/2022/3687598
22. Scott, S. B., Rhoades, G. K., Stanley, S. M., Allen, E. S., & Markman, H. J. (2013). Reasons for divorce and recollections of premarital intervention: Implications for improving relationship education. Couple and Family Psychology: Research and Practice, 2(2), 131–145. https://doi.org/10.1037/a0032025
23. Yöntem, M., Adem, K., Ilhan, T., & Kılıçarslan, S. (2019). Divorce prediction using correlation based feature selection and artificial neural networks. Journal of Balıkesir University Institute of Science and Technology, 21(3), 633–646. https://doi.org/10.25092/baunfbed.635250